The Impact of the 1997 Financial Crisis on Intergenerational Transfers in Korea Using the National Transfer Accounts[1]

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Abstract

National Transfer Accounts (NTA) is an accounting system for measuring intergenerational transfers at the aggregate level in a manner consistent with National Accounts. NTA provides estimates of economic flows across age groups, which takes two forms of asset reallocations and transfers and distinguishes the institutions involving the transactions of governments and privates. In this paper, we attempt to apply the NTA to Korea in 1996 and 2000 and discuss the implications of the NTA results. Korea experienced financial crisis in 1997, so we can show changes in the intergenerational transfers before and after financial crisis. The major post–crisis changes and population aging in Korean intergenerational economy between 1996 and 2005 can be summarized as 1) big decrease in private health and education for children (0~19) and increase in public health and education for same ages, 2) increase in the public transfers for the elderly (age of 65 and over) and decrease in the private transfers for same ages, and 3) huge increase in the asset-based reallocation of the elderly. This result suggests that the contraction of private consumption was smoothed by expanded government expenditure. Accordingly during the economic crisis, consumption decrease was not so large. Also, Korean elderly seemed to have some degree of supporting system during the crisis despite insufficient pension benefits. Increased reliance on asset accumulation will eventually become critical to the future of Korea, as public pension funds are reducing due to aging population.

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Key words: Economic crisis, National Transfer Accounts, intergenerational transfer, lifecycle deficit, lifecycle reallocation

JEL classification: E21, J62, J11, H31

Ⅰ. Introduction

Around the Economic crisis in 1997, Korea faced two great risks called severe economic recession and aging population. However, as a result of quickly enforcing aggressive restructuring throughout the entire society, the crisis was resolved at an early stage and measures against aging society are being prepared. Nevertheless, great impacts of the crisis – popularization of unemployment, polarization of income from collapse of the middle class, appearance of new poverty class, expansion of temporary employment and separation of families – still remain in the private sector. In addition, mixed with the rapid progress of aging, poverty of old aged became a serious social problem. Government sector is also not an exception. Government's expansion policies and increased public assistance on socially weak classes are adding to the budget difficulty of the government. In particular, aging population is closely related to social security system. Financial burden on the government is expected to increase with time, growing as a social problem.

Fortunately though, impact from aging society is expected to be smaller compared to other advanced nations because Korea traditionally was a nation under Confucian belief in which welfare through family is prioritized over welfare through nation. Although private transfer is decreasing in modern generations, compared to the Western society, the aged are supported by their families by large. The ratio of old age population living with adult children is also high.

Since aging population is a serious problem faced by most of nations in the 21st century, there had been many related studies. In relation to the problem of income guarantee, studies on public and private transfers were conducted actively. Private transfer and public transfer had been used as individual study topics due to limitations in the methodology, and there was no positive analysis on the relationship between these two. Especially, the size of public transfer in our nation is relatively smaller than advanced nations in which aging of population has reached maturity. Short history of micro data also results in lack of preceding studies on transfer. However, Mason · Lee et al. (2005) have developed a comprehensive macro-level intergenerational transfer framework and accounting system, which gave rise to

the National Transfer Accounts (NTA), an accounting system for measuring intergenerational transfers at the aggregate level in a manner consistent with National Accounts. NTA provides estimates of economic flows across age groups, which takes two forms of asset reallocations and transfers and distinguishes the institutions involving the transactions of governments and privates. Accordingly, the basis for a study on private and public transfers as a unified topic was prepared. There had been multilateral analyses on the cause and effect of economic crisis. There was no study that examined how intergenerational transfers changed by economic crisis and aging population using NTA.

In this paper, we constructed three periods of NTA, 1996, 2000, and 2005. The year 1996 is the year soon before the economic crisis and before entering the aging society2. And the year 2005 was chosen because it was after entering the aging society and was also the year which shows the effect of increased social policies. We attempted to compare them with the year of 2000, which seemed to be the year when unemployment rates began to recover and per capita income recovered to the level before the economic crisis. We can shed light on the effect of population aging and changes in the intergenerational resource allocation due to the economic crisis during the comparative analysis period.

This paper is organized as follows. Section Ⅱ shortly reviews the economic and demographic trends before and after the economic crisis. Section Ⅲ discusses data and methodology, followed by the results in section Ⅳ. The final section concludes the paper.

Ⅱ. Economic crisis and Population Aging

1. Economic Trends

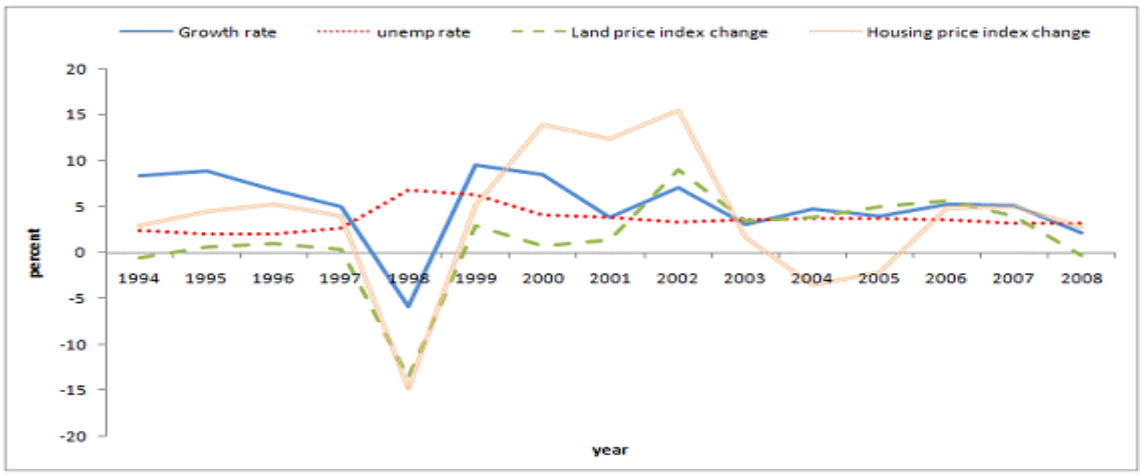
Korea established sharp economic growth, thanks to the industrial development through the five-year economic plan in 1960 before 1997, affected by the impact of the economic crisis. Between 1962 and 1996, real GDP per capita grew at an annual rate of 6.6 percent, and per capita income soared from only $87 in 1962 to $12,197 in 1996. In the process of economic development, investment and saving rate remained over 30 percent. The rate of total savings in Korea increased continuously from 10 percent of GNP in 1960s to 40.4 percent in 1988.

[2] Korea was entered the ageing society in 2000.

As a result, Korea joined as a member of OECD in 1996. But suffering from the economic crisis in end of 1997, Korean underwent a sharp economic slump.

Changes in main macroeconomic indicators between 1994 and 2008 are shown in Figure 1. The growth rate ranged from 8.3 percent to 5 percent until 1997, but it fell to -5.8 percent in 1998, which was the lowest growth rate since 1980's political turmoil in Korea. But the Korean economy began to have a gradual recovery from the crisis thanks to energetic efforts to pursue structural reforms in both financial and corporate sectors. Therefore, the growth rate rebounded in 1999 and recovered almost to the pre-crisis level by 2000. The decline in asset prices was also substantial during the crisis. The price indexes of land and housing increased by 13.6 percent and 14.8 percent in 1998 compared to the previous year. But, land and housing prices began to rise again in 1999. It is interesting that the housing price rose very rapidly after the crisis, much faster than the land price. The housing price increased over 43.6 percent, or 11 percent per annum from 2000 to 2003, which was the year before implementation of policies to curb property speculation. Unemployment rates began to have a recovery in 2000 after it increased from 2.6 percent in 1997 to 6.8 percent in 1998.

Figure 1. Main Economic Indicators



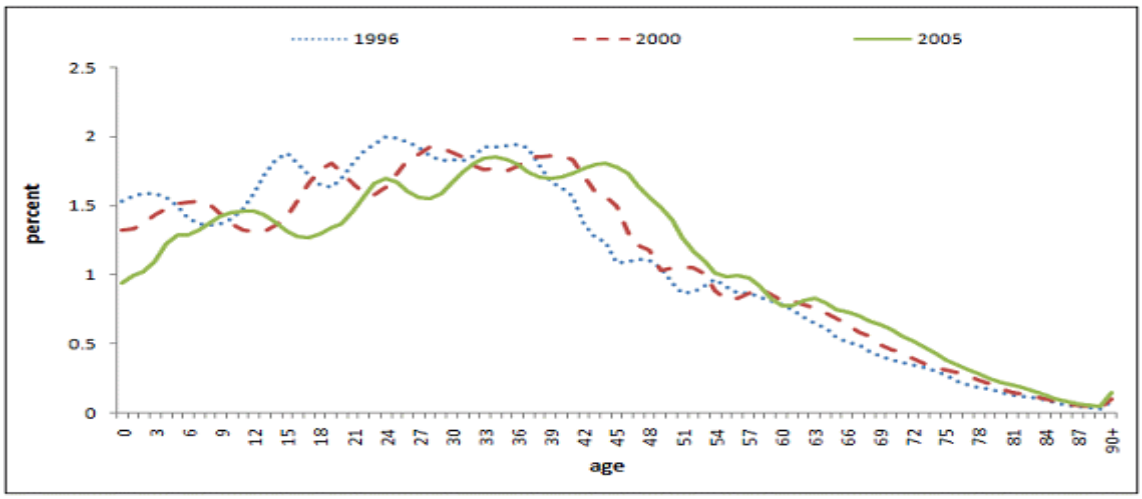
Source: Ecos, The Bank of Korea

2. Demographic Trends

The population age structure of Korea has been shifting to a marked extent as a consequence of low fertility and high life expectancy. Actually, Korea has been experiencing the fastest population aging in the world. Total fertility ratio went down from 1.58 in 1996 to 1.47 in

2000 to 1.08 in 2005. The life expectancy increased from age 73.96 in 1996 to age 76.02 in 2000 to age 78.6 in 2005. The proportion of those aged 65 and over increased from 6.1 percent in 1996 to 7.2 percent in 2000. In contrast, the proportion of those aged below 15 dropped from 22.9 percent to 19.2 percent during the same period. The demographic changes between 1994 and 2008 are shown in figure 2. Youth dependency rate decreased from 22.9% in 1996 to 21.1% in 2000 to 19.1% in 2005. And old age dependency rate increased from 6.1% in 1996 to 7.2% in 2000, entering the aging society, to 9.1% in 2005.

Figure 2. Population Age Structure



Source: Ecos, The Bank of Korea

Ⅲ. Application of National Transfer Accounts(NTA) in Korea

1. Data

Extensive amount of data is needed to estimate NTA in Korea. First of all, NTA is used to construct aggregate controls using components of NTA. Then, allocation of aggregate controls by ages requires data on income and expenditures, records of public institutions (National Pension Statistical Yearbook; NPSY, National Health Insurance Statistical Yearbook; NHISY, etc), and income and expenditure surveys, such as the National Survey of Household Income and Expenditure (NSHIE), Household Income and Expenditure Survey (HIES), Korean household panel study (KHPS) and Korean Labor and Income Panel Study (KLIPS).

NSHIE which started in 1991 has been released every five years and the second survey was conducted in 1996. The third survey was in 2000. This survey investigates yearly income and expenditures, durable goods, assets, and liabilities of household in detail from the national sample household. The sample size is about 27,000 households. The Household Income and Expenditure Survey (HIES) had been conducted with non-farm households excluding one person households in cities during the past sixty or so years and in 2003, it was expanded to include rural non-farm households. And in 2005, it also included one person households. The purpose of HIES is to collect up-to-date information on household income and expenditures and to analyze variations in the levels of living and disparities among different socio-economic groups and to obtain weights for the consumer price index.

KHPS is the first panel data in Korea which has all the strength of the cross-section and time-series data. It was released six times from the first study in 1993 until discontinuance of the study in 1998. It minutely grasped income and expenditures of households and income and tax for people over 18 years of age, excluding Jeju Island. KLIPS is the longitudinal survey of households and individuals residing in urban areas on their labor market and income activities. In 1998, Korea Labor Institute launched the first wave of KLIPS. The KLIPS sample had been selected from households living in 7 metropolitan cities and urban areas in 8 provinces (excluding Jeju Island). The sample size was 5,000 households with 13,321 individuals in 1998.

2. Methodology

The purpose of National Transfer Accounts (NTA) is to measure at the aggregate level, in a manner consistent with National Income and Product Accounts, the reallocations across age of economic resources. These reallocations occur because at some ages individuals consume more than they produce, while at other ages individuals produce more than they consume. The reallocation system consists of a set of complex institutions and practices by which the young and the old, those with lifecycle deficits, draw on surplus resources generated during prime working ages (Mason, lee et al. 2005). This paper does not discuss the methodology in detail. For a detailed discussion on these methods, see Mason et al. (2005), Eulsik Gim (2005), and http://www.ntaccounts.org/web/nta/show. These are briefly presented in Table 1.

Table 1. Estimation Methods and Data

NTA	Methods	Data
Education, private	Regress on enrollment and age	NSHIE, HIES
Health, private	Regress on age	NSHIE, HIES
Imputed-rent, Others, private	Equivalence scale	NSHIE, HIES
Education, public	Age- & education level- specific enrollment rate	OECD education
Health, public	Age distribution of benefits	NHISY
Others, public	Per capita basis	NA
Compensation of employees	Wage of wage workers	KLIPS, KHPS
Entrepreneurial income	Income of non-wage workers	KLIPS, KHPS
Asset income, private	Net property income of households	NSHIE, HIES
Savings, private	Residuals	
Asset income & financial asset Accumulation, public	Age distribution of tax burden	NA
Capital and land accumulation, public	Age distribution of population	NA
Social insurance & tax	Generational accounting	Auerbach, Chun
Inter-household transfers	Private subsidy and remittance of households	NSHIE, HIES
Intra-household transfers	Net transfers=consumption - disposable income	KLIPS, KHPS

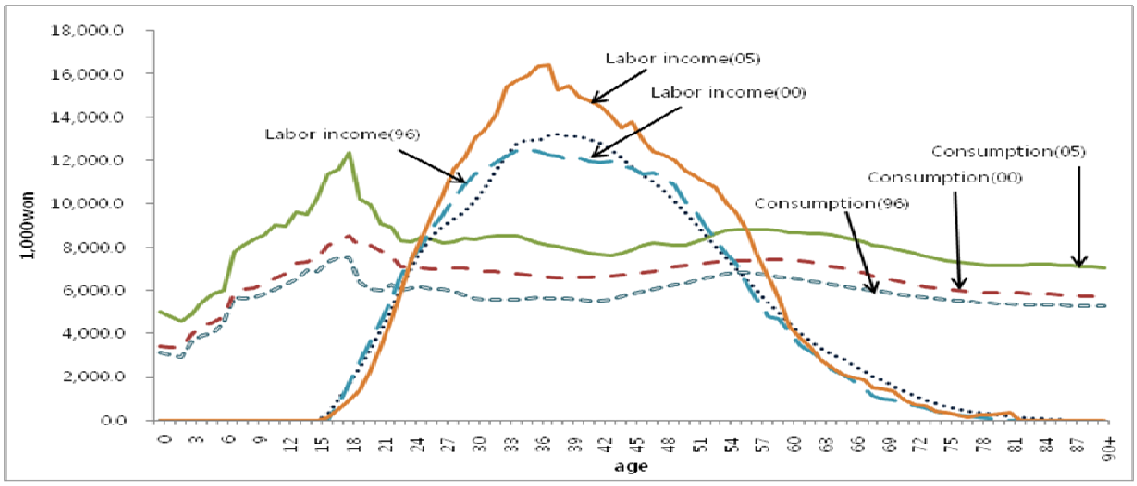
Ⅳ. Results

1. Economic Lifecycle

Figure 3 shows the lifecycle profile of per capita labor income and consumption in Korea for 1996, 2000, and 2005. These prices are expressed in terms of 2000 real prices. The labor income reached the peak at age of 38 in 1996, but it declined to 35 in 2000. It slightly bounced back to 37 in 2005. This is an interesting result because production peaked much earlier in Korea than in many other developed countries and excelled during the economic crisis. This might reflect the fact the unique seniority-based wage system in Korea has been rapidly deteriorating during the 1990s, especially since the 1997 economic crisis. It also decreased the labor income profile between 1996 and 2000, but considerably increased between 2000 and 2005. In addition, the labor income of young adult and elderly decreased after the crisis while the labor income of prime age adults increased.

At the same time, Figure 3 also shows that the consumption peaked in the late teens and decreased until the 40s. This result may be related to high level of private education consumption in high school students. In 2005, the peak of consumption at senior high is much more prominent.

Figure 3. Lifecycle Profiles of Per Capita Labor Income and Consumption



Total consumption has increased gradually during the period. These results are interpreted that the impact of economic crises on consumption might have been alleviated. Especially, the consumption of children below 20 years between 2000 and 2005 has increased considerably. Although income decreased and consumption increased between 1996 and 2000, we need to analyze the funding sources of consumption. We will mention related thoughts on NTA in funding consumption section.

Table 2 shows real growth rate of labor income and consumption components by age group. Age groups are consisted of those aged 0~19, aged 20~64, and aged 65 and over. While per capita labor income lightly increased by only 0.7 percent per annum between 1996 and 2000, per capita labor income for ages 65 and older decreased by 10.7 percent per annum during the same period. On the contrary, per capita labor income increased by 3.7 percent between 2000 and 2005, per capita labor income for ages 19 and under sharply decreased by 13.4 percent per annum during the same period. This shows that unemployment rates of young adults rose more between 2000 and 2005 than between 1996 and 2000. Such result can

be seen as increasing difficulty in youth employment after the economic crisis and high ratio of low-wage, temporary jobs for the youth.

On the other hand, total consumption rose by 3.7 percent per annum, exceeding the increase in labor income. Interestingly, private consumption for ages 0-24 and ages 65 and older increased much less than the average, respectively by 3 percent and 1.6 percent per annum. The consumption difference among age groups in Korea has widened clearly after the economic crisis. Private education and private health consumption have big changes because both of them decreased by 3.8 percent and 2.9 percent per annum, respectively. Especially, it might be because of the increase in private education consumption which occurred mainly by middle and high income brackets after 1998. Ever since the crisis, problem of unfair income distribution between social classes has continued to rise in Korea. Recently, social mobility through education is greatly restricted by educational background and income of parents. Unfair income distribution is expected to become increasingly severe. However, the influence between classes is something that cannot be examined through NTA and will be left as a future study topic.

However, decrease in private consumption was diluted with increase in public consumption. Especially, the public health consumption grew very rapidly for all age groups, recording 10.6 percent per annum. Thus, it presents that the public sector not only alleviated the adverse impact of economic crisis on consumption but also reduced the widening inequality amongst generations due to variation of private consumption.

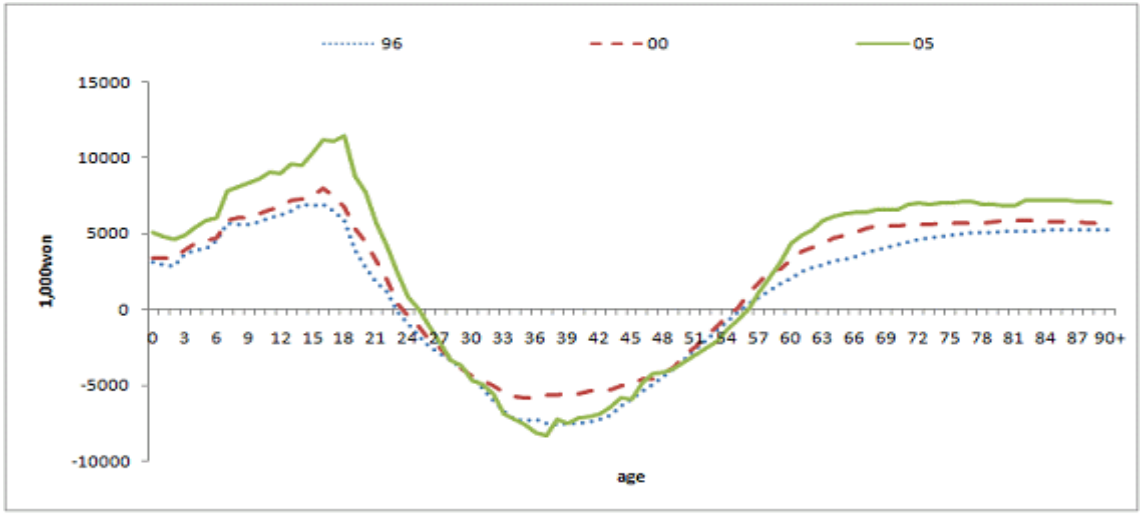
Public consumption has more increase between 2000 and 2005. In particular, public education consumption for ages 0-19 has the most rapid increase from 12.2 percent per annum during the period, while labor income for the same age group has substantial decrease. Public health consumption increased most rapidly during the period. Private education consumption for ages 0-19 grew 22.5 percent per annum during the same period.

Table 2. Real Growth Rate of Consumption and Labor Income: By Age Groups

%	Annual Growth Between 1996-2000				Annual Growth Between 2000-2005			
	0-19	20-64	65+	per capita	0-19	20-64	65+	per capita
Total Consumption	2.6	4.2	2.7	3.7	6.4	3.6	4.0	4.4
Public Consumption	3.7	4.4	6.6	4.0	9.0	6.9	7.1	7.4
Public Education	3.4				12.2			
Public Health	9.4	9.1	14.5	10.6	8.2	10.6	8.9	10.6
Public Others	3.2	3.2	3.2	3.2	6.0	6.0	6.0	6.0
Private Consumption	2.1	4.1	1.6	3.6	5.0	2.8	3.0	3.4
Private Education	-3.8				10.6			
Private Health	-2.9	-1.2	1.4	-0.3	22.5	6.3	8.3	9.2
Housing	-1.4	1.6	5.6	1.9	4.1	1.3	-1.0	2.0
Other Consumption	5.1	4.0	0.9	4.3	2.2	2.7	2.9	2.9
Labor Income	2.7	0.3	-10.7	0.7	-13.4	3.3	3.2	3.7
Compensation	2.6	0.0	-14.1	0.4	-13.5	4.6	6.9	5.0
Self-Employed Income	46.2	2.1	-2.8	2.5	4.8	-6.0	-4.9	-5.4

Lifecycle deficit, which is consumption less labor income, are divided into three parts whether it is surplus or deficit. Figure 4 presents that these age profiles are divided into three parts whether they are surplus or deficit. Lifecycle surplus decreased from 33 years in 1996 (age 23 to 55) to 31 years in 2000 and 2005 (age 24 to 54 and age 25 to 55, respectively). It is interesting that the gap between labor income and consumption is over the time. It might be related to many factors in Korea, such as increase in education consumption for children, increase in the age of entrance to the labor market, and increase in medical expenditure by seniors.

Figure 4. Per Capita Lifecycle Deficit Profiles



2. Reallocation System

Reallocation systems are the way of funding used to fill the gap between consumption and labor income. These systems can be further disaggregated into transfers and asset-based reallocations. And they are also divided into public sector and private sector. Education, public pensions, and health care programs are important examples of public reallocation programs. Important examples of private reallocations are private saving and credit transactions and familial support to children and the elderly. The results are explained in turn using the following figures.

It is not surprising that transfers dominate the reallocation of wealth to children in any economy, because asset reallocation is not the usual mechanism for supporting consumption by young children. Although Korea is no exception, familial transfers to children in Korea is particularly prominent, given the high level of private education consumption by high school students. Figure 6 shows that net public transfers to children are getting more important especially since the recovery of economic crisis due to the rapid increase in public education consumption.

Meanwhile, net private transfers of the elderly remarkably decreased while net private transfers for children gradually increased among the previous period, as shown in Figure 7.

Figure 5. Per Capita Net Public Transfers Profiles

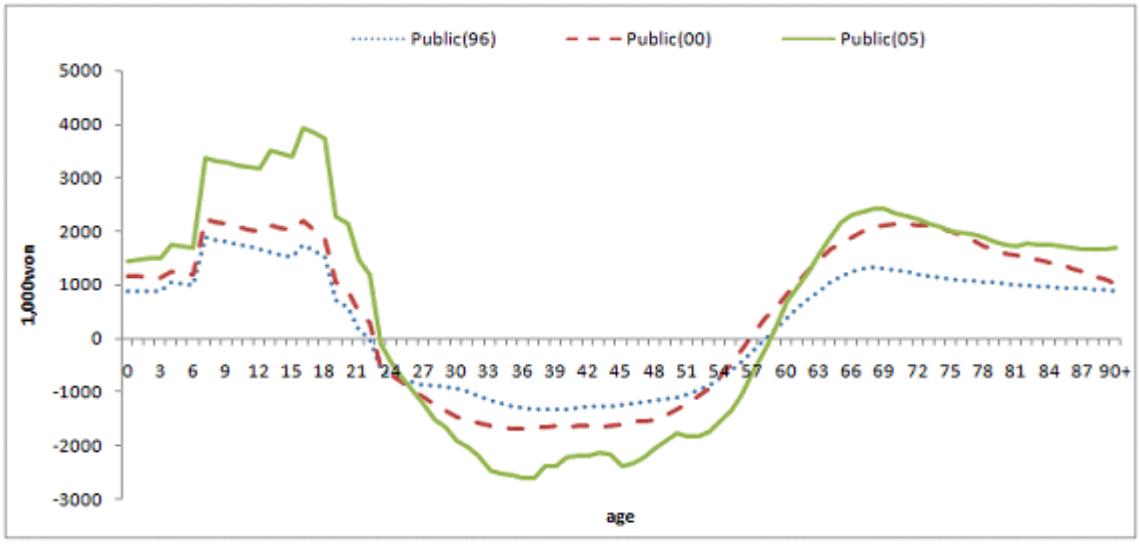
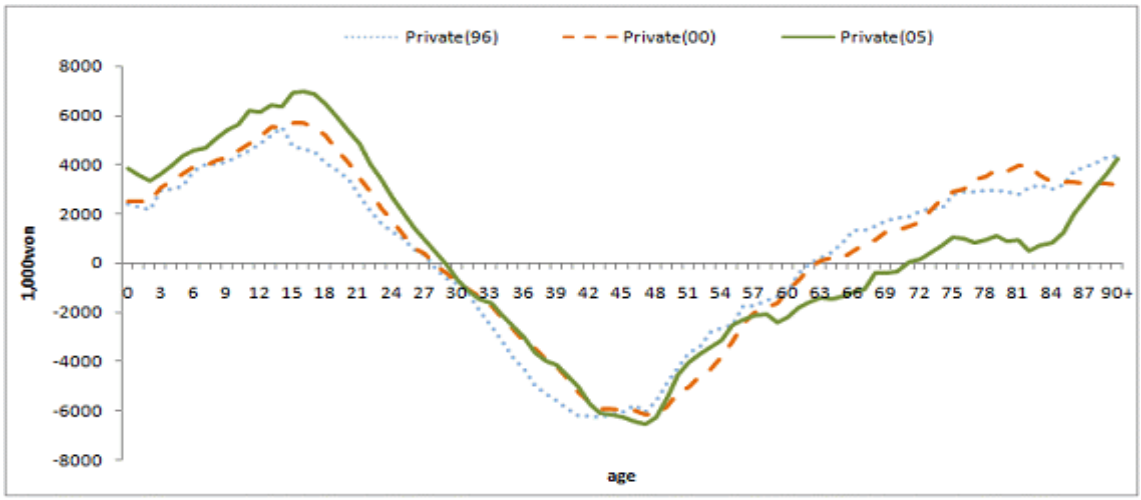


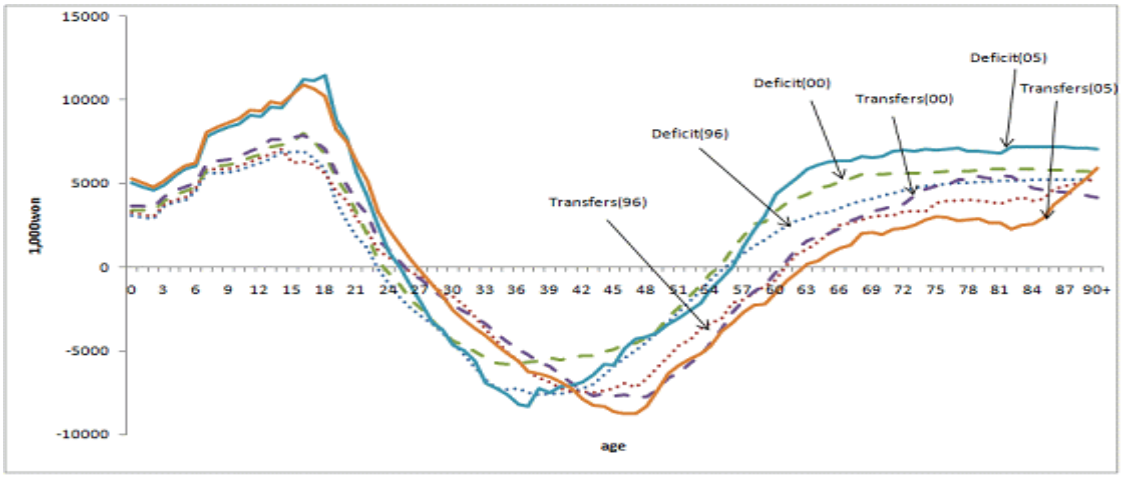
Figure 6. Per Capita Net Private Transfers Profiles



The most important feature of change in transfers was the rapid increase in social welfare expenditure, which is not shown in the figure. Immediately after the crisis in 1998, the government has been continuing policies for stabilization. In late 2000s, the government greatly expanded social welfare budget in order to establish a social safety network through introduction of Basic Livelihood Security System. National Basic Livelihood Security System (NBLSS) is a major public assistances system which consists of cash and in-kind benefits to households with incomes below the poverty line. The ratio of social welfare budget in the government budget increased by about 50 percent from 1996 to 2000 (5.6 to 9.1). While the ratio of social welfare service in each sector decreased between 2000 and 2005, public assistance was increased by about 26% (2.7 to 3.4). Such progressive increase in the size of public expenditure has an important meaning. Since increased spending by aging population is a structural change, it cannot be maintained by budget deficit or borrowing. Increase in public expenditure must be followed by increase in tax burden. Once tax burden increases, citizens may end up moving away to other nations with relatively low tax burdens. Leakage of human resources in the working age groups can make the problem of aging more severe. Furthermore, outflow of labor force may also influence national growth.

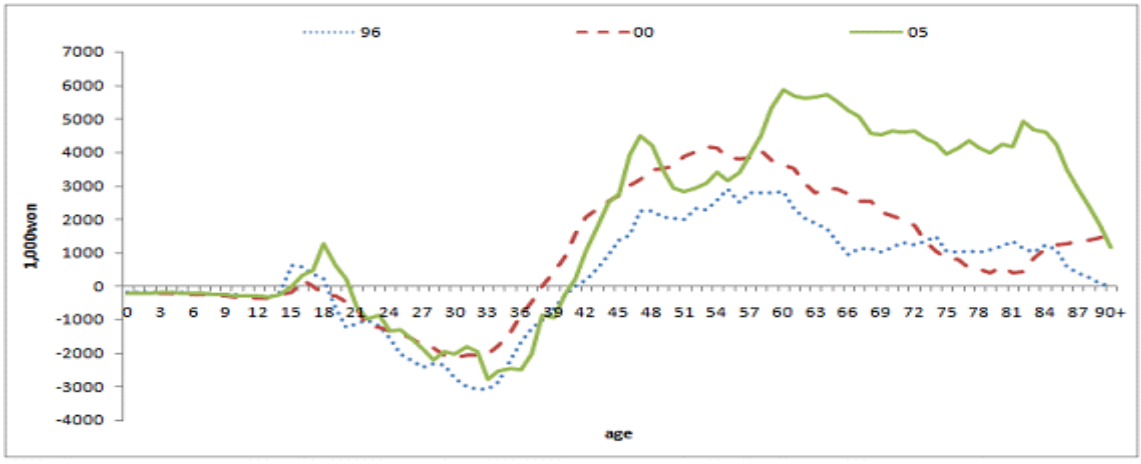
Figure 7 shows that transfers played an important role to make the gap of deficit gap. These transfer outflows were mostly similar to the private sector. They present that the pattern of the reallocation is similar to intra-household transfer, which occupies major ratio in private transfers.

Figure 7. Per Capita Profiles of Lifecycle Deficit and Net Transfer



Private asset-based reallocations were positive after ages 40s in Korea over the period in figure 8. Private asset income was jumping up among ages 40s and 50s. But their private savings were always quite low compared with their asset income. It might be that people in this age group were financing much of the consumption of children and the elderly[3].

Figure 8. Per Capita Asset-based Reallocation Profiles



The prominent feature of the big increase in asset-based reallocation for the elderly can be explained by private asset income and saving. It is because of asset income increased considerably between 1996 and 2000 and dis-saving occurred steeply between 2000 and 2005.

[3] Or it could be simply due to the fact that our results are based on cross-sectional rather than longitudinal data. See Mason et al. (2009) regarding this issue.

Assets income is consisted of capital income, interest income, and other property income. The increase in asset income among elderly during the former period comes from the increase in net inflow of interest income and the latter period comes from other property income for those age groups, while capital income was still a most important source of asset income for Koreans of all age groups. High interest rate in the financial industry immediately after foreign eonomic crisis largely increased financial assets of the high income class.

Figure 9. Per Capita Private Asset Income

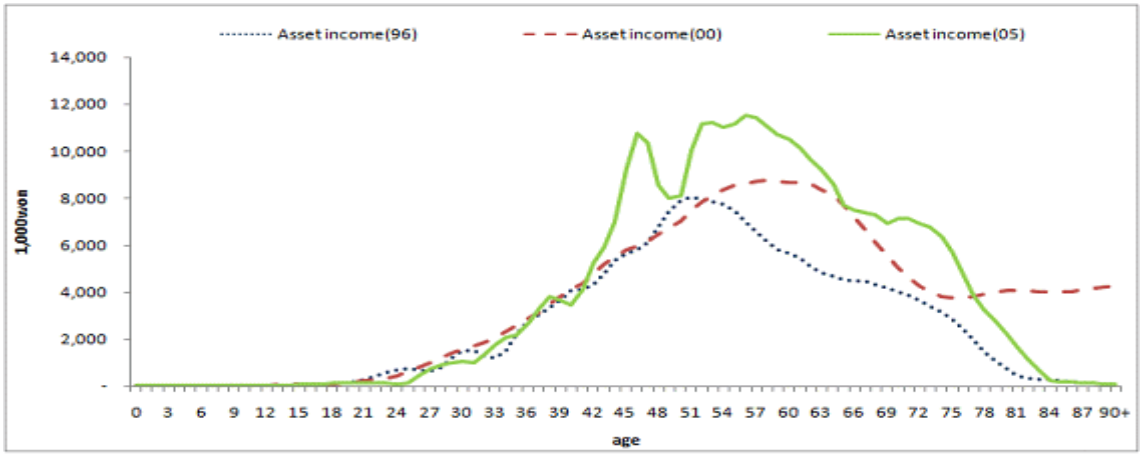
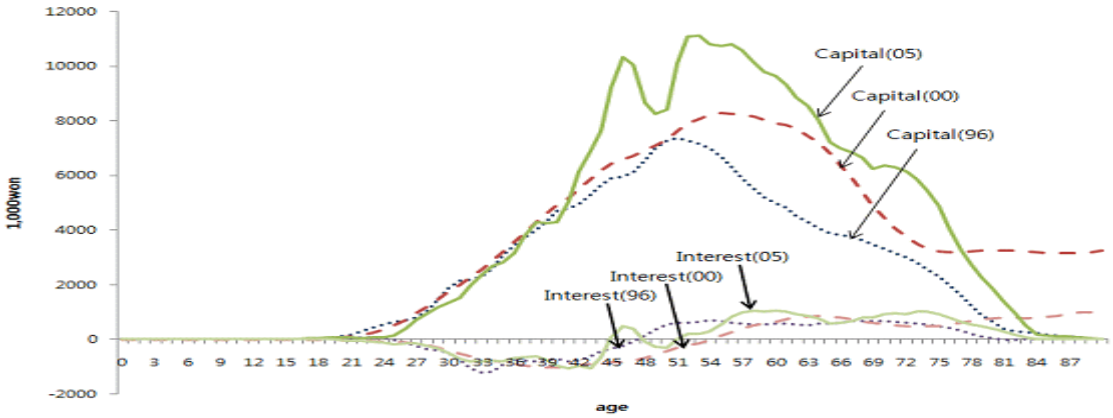


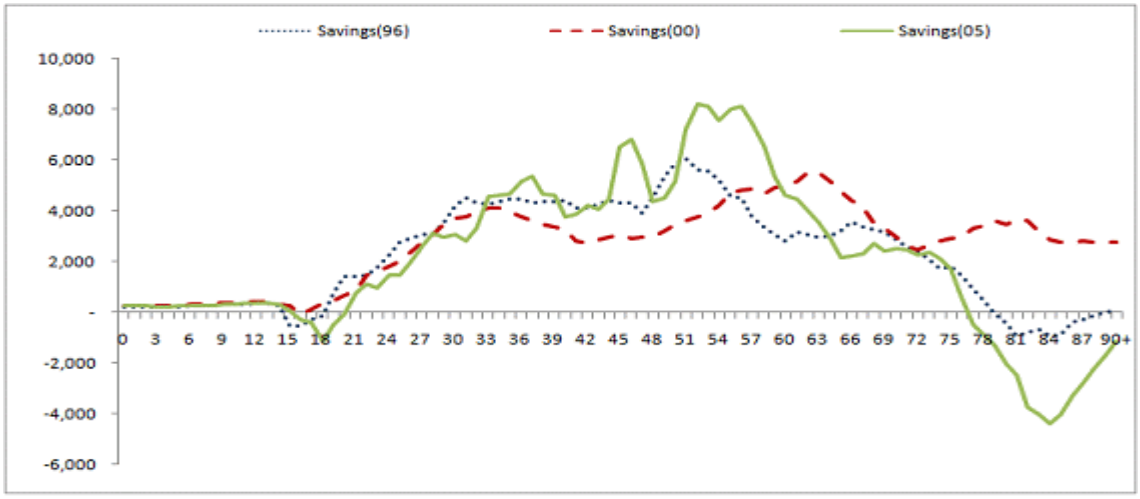
Figure 10. Per Capita Profiles of Private Asset Income by Component



It might be because of low interest policy after the crisis and speculation in real estate between 2000 and 2005. With low interest policy by the government, investors began to turn their eyes back to real estate. Housing prices that dropped after the financial crisis began to rapidly rise since 2001 after hitting the bottom in 1998. Despite the abrupt fall of real estate prices just after the crisis, there have been turned to increase considerably housing

prices since 1999. There are unique rental housing system deposit in Korea. That is, *chonsei* deposit, which is some proportion of purchasing price of a house to the landlord in lieu of monthly rent, but the deposit is fully returned to the tenant at the termination of the lease since 1998(Kim, 1999). Given this unique structure of the rental market system, renters in Korea have a proportion of their assets tied up in housing and thus cannot diversify them. This unique system should have affected the age profiles.

Figure 11. Per Capita Private Saving Profiles



3. Sources of Funding Consumption

Figure 11 shows how consumption by children and the elderly was funded during the comparative period. All consumption for the children was financed by transfers. In particular, private transfers occurred largely, accounting for more or less than 70 percents for 1996 and 2000. The remainder consisted of public transfers and its importance has been substantially increased over the periods.

Private transfers for the elderly were most important source of consumption for the elderly in 1996, accounting for about 37 percent. But it decreased to 29 percent in 2000 and further decreased considerably to 1.3 percent in 2005. Public transfers accounted for only 20 percent of consumption by the elderly in 1996, but it jumped up to about 30 percent in 2000 and decreased slightly until 2005. Labor income decreased gradually from 24 percent of consumption in 1996, but it declined to about 13 percent in 2000 and 2005.

Figure 12. Sources of Financing Consumption

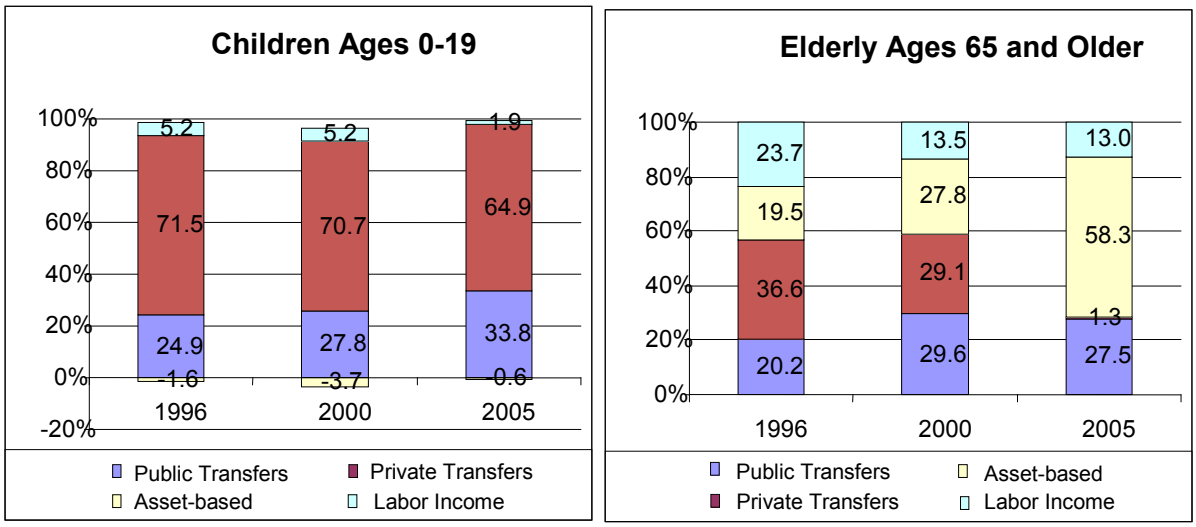


Table 3 presents the national transfer flow account for Korea in a highly summarized form, reporting aggregate lifecycle deficits and aggregate age reallocations across age groups. The lifecycle deficit has become large as population ages from 12 trillion won in 1996 to 30 trillion won in 2005 and labor income decreased for the older people ages 65 and older.

Table 3. National Transfer Accounts, Aggregate Values by Groups: Billion won

1996	Total	0-19	20-64	65+
Life Cycle Deficit	**-12,590**	**74,873**	**-99,717**	**12,254**
Consumption	263,878	78,979	168,848	16,050
Public	58,089	24,914	29,902	3,273
Private	205,789	54,066	138,946	12,777
Labor Income (Less)	276,467	4,106	268,565	3,796
Asset Reallocations	**- 12,590**	**74,873**	**-99,717**	**12,254**
Transfers	-161	76,174	-85,453	9,118
Public	0	19,671	-22,917	3,246
Private	-161	56,503	-62,537	5,872
Asset-Based Reallocation	-12,428	-1,301	-14,263	3,136
Public	-36,379	-3,998	-30,735	-1,646
Asset income	4,832	531	4,082	219
Saving-Less)	41,210	4,529	34,817	1,865
Private	23,951	2,697	16,472	4,782
Asset income	96,256	54	87,572	8,631
Saving-Less)	72,306	-2,644	71,100	3,849

2000	Total	0-19	20-64	65+
Life Cycle Deficit	**21,299**	**79,505**	**-76,930**	**18,725**
Consumption	314,706	83,887	209,161	21,658
Public	70,098	27,608	37,358	5,133
Private	244,609	56,280	171,804	16,525
Labor Income -Less)	293,407	4,382	286,092	2,933
Asset Reallocations	**21,299**	**79,505**	**-76,930**	**18,725**
Transfers	644	82,629	-94,698	12,713
Public	0	23,326	-29,746	6,420
Private	644	59,303	-64,952	6,294
Asset-Based Reallocation	20,655	-3,124	17,768	6,012
Public	-49,731	-4,729	-42,624	-2,378
Asset income	9,047	860	7,754	433
Saving-Less)	58,777	5,589	50,378	2,810
Private	70,386	1,605	60,392	8,389
Asset income	125,337	30	108,075	17,231
Saving-Less)	54,951	-1,575	47,684	8,842

2005	Total	0-19	20-64	65+
Life Cycle Deficit	38,405	101,112	-92,255	29,549
Consumption	399,109	103,036	262,116	33,958
Public	102,452	38,315	54,843	9,294
Private	296,657	64,720	207,273	24,664
Labor Income -Less)	360,704	1,924	354,371	4,409
Asset Reallocations	38,405	101,112	-92,255	29,549
Transfers	-2,267	101,684	-113,699	9,747
Public	0	34,795	-44,116	9,321
Private	-2,267	66,890	-69,583	426
Asset-Based Reallocation	40,672	-573	21,444	19,801
Public	-50,380	-3,604	-44,192	-2,583
Asset income	8,661	620	7,597	444
Saving-Less)	59,040	4,224	51,790	3,027
Private	91,051	3,031	65,636	22,384
Asset income	171,600	69	147,179	24,352
Saving-Less)	80,549	-2,963	81,543	1,968

Notes : 1. Positive values represent net inflows and negative values represent net outflows.
2. Some figures of individual categories may not be equal to the total because of individual rounding off.

Ⅴ. Concluding Remarks

The challenges resulting from rapid aging and extremely low fertility level are of great concerns to Korea simply because no other society has faced so dramatic a demographic transition. This paper provides major post–crisis changes and population aging in Korea intergenerational economy between 1996 and 2005. The summary and implications of the

study are as follows. The results shows that private health and education for children (0~19) decreased sharply and public health and education for the same ages increased. This result suggests that consumption shrinkage in the private sector was smoothed by expansion in government expenditure. Accordingly, decrease in consumption during the crisis was not so large. This result suggests that the public sector not only alleviated adverse impact of economic crisis on consumption but also reduced inequality amongst generations.

At the same time, public transfers for the elderly (age of 65 and over) increased while private transfers for the same ages decreased. The most important result is that asset-based reallocation of the elderly increased considerably. The increase in asset-based reallocation was mainly due to an increase in asset income between 1996 and 2000, but it was almost entirely due to a decrease in saving (an increase in dis-saving) between 2000 and 2005. Korean elderly seemed to have some degree of supporting system during the crisis despite insufficient pension benefits. This is good news for Korea because a smaller public resource toward the elderly will be required and that in turn will alleviate the financial burden due to rapid population aging or during the economic downturn. However, the increased reliance on dis-saving will lead to a decrease in saving rates, which could be an obstacle for economic growth in the future. The increased reliance on asset accumulation will be eventually critical in the future in Korea, as public pension funds reduces due to population aging.

On the other hand, limitations of this study include inability to separate the effects of financial crisis and aging population from other socio-economic factors using NTA and difficulty in classifying subjects into different income classes and genders.

Since our society entered into aging society in 2000, the size of public assistance has been expanding greatly with expansion of National Basic Livelihood Security System in 2002, introduction of Basic Senior Pension System in 2007, appearance of pension recipients in 2008 and enforcement of long-term care. Such expenditures are conducted as social contracts. Once enforced, such systems cannot easily be modified and can influence reallocation of assets between generations. Therefore in terms of financial burden on aging population, the overall influence of systems on the finance and intergenerational reallocation must be considered at the same time.

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